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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/869,859	07/06/2001	Graham Stewart Brandon Street	0787-0117P	1301

2292 7590 12/12/2003

BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER

CHANG, AUDREY Y

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 12/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/869,859

Applicant(s)

STREET, GRAHAM STEWART
BRANDON

Examiner

Audrey Y. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-5, 7-13, 15 and 17-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-5, 7-13, 15 and 17-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on **September 22, 2003** has been entered.
2. This Office Action is also in response to applicant's amendment filed on September 22, 2003 which has been entered as paper number 14.
3. By this amendment, the applicant has amended claims 17 and 19.
4. Claims 2-5, 7-13, 15, and 17-20 remain pending in this application.

Drawings

5. The **proposed drawing** correction and/or the proposed substitute sheets of drawings, filed on January 17, 2003 have been **disapproved** because they **introduce new matter** into the drawings. 37 CFR 1.121(f) states that no amendment may introduce new matter into the disclosure of an application. The original disclosure ***does not support*** the showing of the two patterns (20 and 21) as in the newly proposed Figure 3. The specification also does not give support for the ***relative positions*** and ***orientation*** between the two patterns as shown in the newly submitted Figure 3. **The specification also fails to give positive descriptive support for each elements shown in the figures.**
6. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the first and second emergent means recited in claims 18 and 20, also the features recited in claim 10 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

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A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. **Claims 17-20 and 2-5, 7-13, 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

The applicant is respectfully reminded that when amending the claims, a thorough proof reading to the amended claims and all the other claims are respectfully requested in order for the claims to be consistent with each other.

The phrase “a first object axis lying therein and having a direction orthogonal to a long axis of the juxtaposed regions” recited in claims 17 and 19 is confusing and indefinite since it is not clear what is considered to be the object axis and what is considered to be the long axis and what is considered to be “therein”. The object in this case is a pattern of light transmitting and light blocking regions; it is not clear what is considered to be the “axis” of these regions. The applicant is respectfully reminded that the claims recite various “planes”, “directions”, and “axis”, **proper antecedent basis** and clear structural relationships among them are required to make the claims clear.

The phrase “to determine ... and *thereby* the position of said first substrate relative to said second substrate in said object plane along a first object axis” recited in claim 17, the phrase “*thereby* defining the position along a second object axis of said first substrate relative to said second substrate” recited in claim 18, The phrase “*thereby* ... and the position of said first substrate relative to said second substrate in said object plane and along a first object axis therein” recited in claim 19, and the phrase “*thereby* the

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position along a second object axis of said first substrate relative to said second substrate and the relative position in two orthogonal directions of the first substrate relative to the second substrate” recited in claim 20 are all confusing and indefinite. It is not clear how could this relative position between the first and second substrate along an object axis (?) be defined in this way. Since in order to determine the relative position, certain *reference point* must be defined in order, yet there is no such reference point defined. It appears that *an aperture* MUST be placed in front of the second substrate to some how define a reference point or reference lenticular lens for the relative position to be defined. Otherwise the so called unique pattern will be formed by ALL of the lenticular lenses of the second substrate at different image positions and it would then not be able to determine the relative position definitely since the obtained image pattern relative to the second substrate will not be definite. Or some sort of definite reference object pattern with the proper position information MUST be provided in order to determine the relative position.

Clarifications to eliminate the confusions and indefiniteness are certainly required.

The phrase “said light transmitting and light blocking regions” recited in claim 19 is confusing and indefinite since it lacks proper antecedent basis from earlier part of the claim.

Claim 2 is confusing and indefinite since it is not clear how does the “first cylindrical lens element” relate to the lenticular screen and relate to the “lens elements” of the lenticular screen. The specification does not teach that the first cylindrical lens element *be different* from any other lenticular lens element of the lenticular screen (please see Figure 1), but claim 2 seems to suggest that they are different.

The phrase “the convergent means” recited in claims 2, 5, and 10 should be changed to “the converging means”.

The phrase “the two orthogonal directions” recited in claim 11 is not defined and lacks proper antecedent basis from its based claim.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. **Claims 17-20, 2-5, 7-13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the PCT application of Street (WO 97/22033) in view of the patent issued to Young (PN. 5,689,340).**

Street teaches an *autostereoscopic image display* that is comprised of a *mask* (21) having checkerboard arrangement of *light transmitting and light blocking regions*, (please see Figure 3). The checkerboard arrangement can be arbitrarily divided to include *two* sets of *plurality* of light transmitting and blocking regions formed on a single substrate, serves as the first substrate. The display further comprises a *first lenticular lens* (27) having at least one cylindrical lens element, that serves as the *first convergent means*, and a *second lenticular lens* (29), serves as the *second convergent means*, together for either collimating or reimaging the light beams originated from the transmitting regions of the mask to the locations of a display device (30), (please see Figure 3). The two lenticular lenses have orthogonally oriented cylindrical lens elements. The pattern of the light transmitting and blocking regions on the mask serves as the object pattern that is reimaged at the location of the display device, which serves as the image plane. The two sets of plurality of light transmitting and light blocking regions comprise a plurality of juxtaposed stripes, (please see Figure 3). It is *implicitly true* that the *relative positions* between the mask and the lenticular lenses, either in the optical axis direction or the transverse direction along the mask pattern, are well defined by the lens maker's equation in the optics which essentially involves the *geometric* relationships between the object size (i.e. the mask pattern dimensions) and

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location, the image size, the relative distances between the mask, which acts as the object pattern, and the lenticular lenses and the relative distance between the image locations and the lenticular lens and the focal lengths of the lenses. Furthermore, *Young* in the same filed of endeavor teaches a *vision measurement system* (10, Figure 1) and method for measuring a lenticular material (14, Figure 1) wherein backlight sources are used to generate light through the lenticular material to form bright-dark image pattern of the lenticular material on a plurality of sensors (20), including a 2-dimensiona array of CCD sensors, at the image plane for detecting the image pattern formed. The obtained image pattern on the CCD sensors is then feed into a vision measurement computer to calculate the desired location and **alignment** information of the lenticular material, (please see Figure 1). The **alignment** information of the lenticular lens in particular concerns the relative position along the direction that is orthogonal to the optical axis of the lenticular lens and in the plane of the lenticular lens. It would then have been obvious to one skilled in the art to apply the teachings of vision measurement system of *Young* to inspect and measure the positions and alignment of the autostereoscopic image display arrangement of *Street* for the benefit of achieving a more accurate alignment and the relative locations for the various optical elements in the display system which will definite improve the image display quality.

Street teaches that the object pattern, which comprises the light transmitting and light blocking regions, including a regular checker pattern. *Young* however teaches that the light and dark pattern used for aligning the lenticular lens can have different width, (please Figures 5-10). It would then have been obvious to one skilled in the art to use pattern having different width as signature pattern and reference pattern for determining the positions and alignment.

Although the *Street* reference does not teach specifically that the two lenticular lenses are formed on a single substrate however such design is very well known in the art and they are considered to be art recognized equivalents to one skilled in the art.

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These references do not teach to include an aperture means explicitly. However Young does teach that the inspection and calculation could be limited to only "coded" areas of the lenticular material. It is therefore either implicitly true or an obvious modification to one skilled in the art to use an aperture means to limit the measurement only be done at desired location.

The position of the lenticular lenses certainly can be adjusted to the least manually by an operator's hands.

Response to Arguments

11. Applicant's arguments filed on September 22, 2003 have been fully considered but they are not persuasive. The newly amended claims have fully considered and they are rejected for the reasons stated above.

12. The applicant is respectfully reminded the arguments presented in the interview are not in the official record and cannot be relied upon. The applicant is respectfully requested to present written arguments concerning the "disagreements" to the cited references. The arguments concerning "non-repeating pattern" do not overcome the rejection since this feature is not positively recited in the claims. The phrase "one of a selection of different widths" does not require the pattern to be non-repeating.

13. The applicant is respectfully reminded that the numerical references present in the drawings needed to be described positively in the specification. No two numerical references can be used for the same part and no two parts should have the same numerical reference through out the specification.

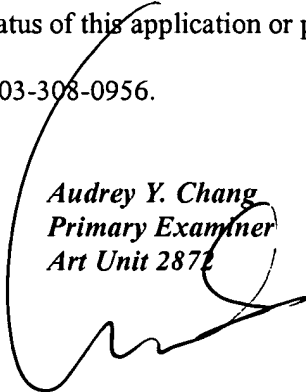
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 703-305-6208. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 703-305-0024. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Audrey Y. Chang
Primary Examiner
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A. Chang, Ph.D.